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DESCRIPTION OF AN INVENTION

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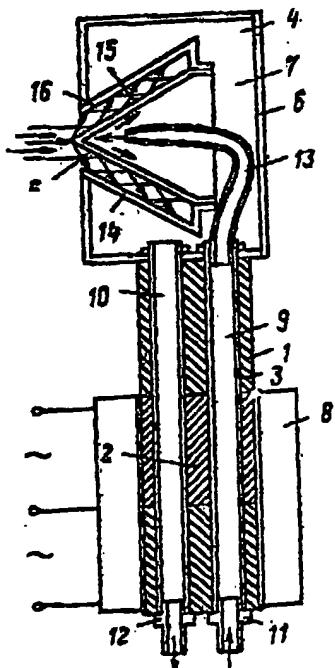
USSR Inventor's Certificate no. 748328, cl. G 03 B 9/08, 1978

(54) SVETOVOI ZATVOR

(54) LIGHT VALVE

(57) The invention concerns laser equipment and makes it possible to increase the reliability of operation of the device by

excluding retroreflection. Armature 1 of the valve has shutters 4 fixed on it, whose outer walls are arranged at an angle to the optical axis and have a housing 14. Shutters 4, which are moved by the retraction of magnetic part 2 of armature 1 into electromagnet 8, cover the stream of radiant energy, part of which is absorbed by their outer walls 5 and part of which reflects onto working surfaces 15 and 16 of housing 14 and is absorbed by them. Heat is removed from the walls of the shutter by a cooling pipe 13. 1 illustration.



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The invention concerns laser equipment, in particular light valves for covering a high-intensity stream of energy emitted by a laser.

The goal of the invention is to increase the reliability of operation of the device by excluding retroreflection of the high-intensity stream.

The drawing shows the light valve (overall view).

Armature 1, which consists of a magnetic part 2 and a non-magnetic part 3, has shutters 4 fastened on it, each of which encloses a cooling cavity 7 between its outer 5 and inner 6 walls. Armature 1 is fixed in a single-coil divided electromagnet 8, through which pass a connecting tube 9 to feed coolant and a connecting tube 10 to remove coolant, which have unions 11 and 12, respectively. Pipe 13 for cooling outer wall 5 of shutter 4 is inserted into cooling cavity 7. Outer wall 5 of shutter 4 has a housing 14, whose working surfaces 15 and 16 are made to be absorbent.

The light valve operates as follows.

Single-coil divided electromagnet 8 has voltage applied to it for a short time, and magnetic part 2 of armature 1 retracts into it. In the process, shutters 4 move and cover the stream of radiant energy which falls onto outer walls 5 of shutters 4, part of which is absorbed and part of which is reflected onto housing 14, where part of it

is also absorbed and part of it is reflected, etc.

Heat is removed from absorbent surfaces 15 and 16 throughout the entire volume of cooling cavity 7. In order to withdraw shutters 4 from the zone of propagation of the stream of radiant energy, single-coil dividing electromagnet 8 once again has voltage applied to it for a short time, and the displacement of magnetic part 2 of armature 1 also moves shutters 4.

Thus, the light valve of the proposed design has a greatly increased surface area to absorb the stream of radiant energy, and its retroreflection is prevented.

Claims

Light valve, containing shutters which are connected with a servo and each of which encloses a cooling cavity between its outer and inner walls, characterized by the fact that in order to increase the reliability of operation by excluding retroreflection, the outer wall of each shutter is arranged at an angle to the optical axis and has a housing, with the working surfaces of the housing and the outer walls being made absorbent and set at an angle to one another, to prevent retroreflection.

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